



Blood Specimen Collection, Packaging and Transport Protocol:

Blood Specimens Collected for Analysis at a Level 1 or Level 2 LRN-C Laboratory

This protocol is for human clinical blood specimens collected for analysis at a Laboratory Response Network (LRN)-Chemical Level 1 or Level 2 laboratory. These specimens target a specific analyte or analytes. The determination of what agent is the analysis target is made in consultation with the Federal Centers for Disease Control (CDC), the Washington State Public Health Emergency Preparedness and Response Program Chemical Incident Response Unit (CIRU), the designated consulting toxicologist to the CIRU, and/or the designated consulting physician to the CIRU.

Collect specimens and package them for shipment as described below unless otherwise directed. Instructions on the shipment destination will be provided after the responsible local health department has contacted the Washington State Public Health Laboratories (WAPHL).

REQUIRED SPECIMENS

Collect the specimens defined below. Blood should be collected only by trained personnel using aseptic methods and working under the direction of a qualified, licensed practitioner. Standard venipuncture blood collection and handling procedures (CLSI Guideline H3 and H18) should be followed.

SPECIMEN COLLECTION

Collect a whole blood specimen into the type of blood tube as directed by the Washington State Public Health Emergency Preparedness and Response Program Chemical Incident Response Unit (CIRU). The tube will be one of those listed below. Collect the specimen by full-draw, vacuum-fill only (**unopened**) directly into the blood tube. Do not collect by a syringe draw and transfer. Plastic (PET) tubes are preferred.

- Lavender-top (EDTA) tube. Mix by inverting 8-10 times.
- Gray-top (oxalate/fluoride) tube. Mix by inverting 8-10 times.
- Green-top (heparin) tube. Mix by inverting 8-10 times.

EVIDENTIARY REQUIREMENTS

Apply evidence tape and the tape applicator's initials to *each specimen container and secondary packaging* as described below.

- **Evidence tape** - Place a single, unbroken strip of waterproof, tamper-evident forensic evidence tape on the container being careful not to cover the specimen ID label. Begin by sticking the tape to the specimen container at one side, somewhat below the top, then apply it over the top, and finally bring it down and stick it to the opposite side of the container. Also apply evidence tape to the blank containers.
- **Initialing** - The individual applying the evidence tape must write their initials in indelible ink on the tape and container so their initials are approximately ½ on the tape and ½ on the container. Apply tape to the secondary container and initial in the same manner.
- **Chain-of-custody** – A chain of custody form must be completed for the specimens. An example form is located in the Appendix. Chain of custody forms *do not* need to be transported with specimens. Each entity/organization handling the specimens is responsible for the specimens only during the time that they have control of the specimens. Each entity/organization receiving the specimens must sign-off on the chain of custody form of the entity/organization relinquishing the specimens to close that

chain. When receiving specimens, each new entity/organization must begin their own chain of custody and have the entity/organization relinquishing the specimens sign their chain of custody to start the chain and indicate that they have transferred the specimens. *When specimens are transferred between entities/organizations, each entity/organization retains their chain of custody forms.*

NOTE: When the individual relinquishing the specimens (relinquisher) and the individual receiving the specimens (receiver) are not together at the time of specimen transfer, the relinquisher will document on their chain of custody that the receiver is FedEx Tracking Number or have the individual transporting the specimens sign the chain of custody to indicate that they have taken control of the specimens. Likewise, when the receiver receives the specimens, they will document on their chain of custody that the relinquisher is FedEx Tracking Number or the have the individual transporting the specimens sign the chain of custody.

STORAGE REQUIREMENTS

Specimens must be refrigerated within 30 minutes of collection and maintained at refrigeration temperature (4°C) continuously. ***Do not freeze blood specimens.***

BLANKS

Tube blanks for measuring background contamination must be included with each shipment of specimens. For **each lot number** of tubes used for collection, please provide two (2) unopened tubes.

DOCUMENTATION AND LABELING

- Label specimens with labels generated by your facility. Follow your facility's procedures for proper sample labeling. Do not include any personal identifiers on the specimen containers.
- Inclusion of the collector's initials, and date and time of collection will allow law enforcement officials to trace the specimen back to the collector should there be a need to have the collector testify as to the specimen collection.
- Maintain a list of names with corresponding sample identification numbers or bar codes at the collection site to enable results to be reported to the patients.
- Prepare an itemized shipping list for each secondary package. An example list is located in the Appendix.

PACKAGING SPECIMENS FOR TESTING

- Follow all current regulations in the packaging and shipping of specimens.
- Pack and ship these samples as **DIAGNOSTIC SPECIMENS**. Packaging for diagnostic specimens requires triple packaging, consisting of a leak-proof primary receptacle (the tube), a leak-proof secondary packaging that meets 49CFR173.199(b), and an outer packaging. Use styrofoam-insulated corrugated fiberboard outer packaging containers.
- Specimens must be maintained at refrigeration temperature (4°C) during transportation.

Secondary packaging

Primary receptacles must be packed in secondary packaging so they will not break, be punctured, or leak their contents into the secondary packaging under normal handling conditions. Fragile primary receptacles packaged together must be individually wrapped or separated so they are not in physical contact. If more than one type of blood tube specimen is collected package them into separate secondary containers.

- Separate each tube of blood collected from other tubes (e.g., using a gridded box or a foam rack) or wrap tubes to prevent contact between tubes.
- To facilitate processing upon receipt, package blood tubes so that similar tubes are packaged together (e.g., all purple-tops together) and not mixed (i.e., purple-tops and green/gray-tops in the same package) in the secondary packaging.
- Place absorbent material between the primary receptacle and the secondary packaging. Use enough absorbent material to absorb the entire contents of primary receptacles.
- Place tubes in secondary packages. A variety of secondary packages may be used, for example, a gridded box wrapped with absorbent material and sealed inside a rigid leak-proof container or a two-part system of a plastic bag and Tyvek® envelope. Secondary containers must be marked with a Biohazard warning label or be completely red in color.
- Wrap a single continuous piece of evidence tape around the secondary container and initial, in indelible ink, ½ on the tape and ½ on the packaging.

Outer packaging

Use Styrofoam-insulated corrugated fiberboard containers. Outer packaging may not exceed a 4 L (1 gallon) capacity.

- Place additional absorbent material in the bottom of the outer container for cushioning and to absorb condensation from the cold packs.
- Add a layer of ***frozen cold packs***. Do not use ice.
- Place secondary containers on top of the cold packs. Both purple-top and gray/green-top containing secondary packages may be packaged in the same outer packaging.
- Place additional cold packs or absorbent material between the secondary containers to reduce their movement within the outer container.
- Place a layer of ***frozen cold packs*** on top of the secondary containers.
- Place a complete, itemized list of contents (with sample identification numbers) in a plastic zippered bag on top of the secondary packaging before closing the Styrofoam lid.
- Place the completed chain-of-custody forms in a plastic zippered bag on top of the Styrofoam lid.
- Affix labels and markings on the top of the packaging to increase the probability the package will be kept in the upright position.
- Clearly label the package with “From” sender’s address and “To” recipient’s address.
- Ensure that two (2) upwards-pointing orientation arrows are located on two opposite sides of the outer container.
- Place a label on the outer container that indicates the proper name, “DIAGNOSTIC SPECIMENS” adjacent to the shipper’s address that appears on the package.

CRITERIA FOR SPECIMEN REJECTION

Specimens may be rejected if any of the following conditions are evident upon receipt:

- Specimen tube is broken or leaking.
- Specimen has warmed above 8°C.
- Primary receptacle not sealed with evidence tape.
- Evidence tape has been tampered with.
- Itemized list of specimens is not included.

SHIPPING SPECIMENS

Collected and packaged specimens will be sent to either the Washington State Public Health Laboratories (WAPHL) or to the Centers for Disease Control and Prevention (CDC). Shipment destination will be provided after the responsible local health department *has contacted the WAPHL*.

Do not send specimens to WAPHL unless instructed to do so by the Washington State Public Health Laboratories.

If instructed to send the specimens to the Washington State Public Health Laboratories ship to:

Washington State Public Health Laboratories
Chemical Terrorism Response
1610 150th Street NE
Shoreline, Washington 98155-9201

If specimens are sent by courier, driving directions to the WAPHL are:

From I-5: Take exit N.E. 145th St. (Exit #175, WA-523); head east on 145th Ave NE; turn LEFT onto 15th Ave NE; turn RIGHT on NE 150th; the Washington State Public Health Laboratories will be on your left.

In cases where specimens are shipped by commercial carrier follow all State and Federal shipping regulations.

Do not send specimens to the CDC unless authorization to do so has been received from the Director of the WAPHL. Shipping instructions and the recipient address will be supplied with the authorization.

If authorized to send the specimens to the CDC the recipient address will be supplied.

QUESTIONS

Please direct questions regarding the collection, packaging and/or shipping of specimens to one of the following people:

- Chemical Terrorism Laboratory Program Advisor – 360-236-3387
- Assistant Chemical Terrorism Laboratory Coordinator – 206-418-5643

APPENDIX 1. SAMPLE ITEMIZED LIST OF CONTENTS

Page ____ of ____

Shipping container # ____ of ____

[FACILITY/AGENCY HEADER]

Patient/Victim ID Label	Type and size of tube (e.g., purple top, 5 mL)	Comments
		<hr/> <hr/>
		<hr/> <hr/>
		<hr/> <hr/>
		<hr/> <hr/>

APPENDIX 2. SAMPLE CHAIN-OF-CUSTODY FORM

Page ____ of ____ Shipping container # ____ of ____

[FACILITY/AGENCY HEADER]

Date: Time:

Collected By: _____
(Printed Name) (Signature)

Reason: _____

Received By: _____
(Printed Name) (Signature)

Reason: _____

Received By: _____
(Printed Name) (Signature)

Reason: _____

Received By: _____
(Printed Name) (Signature)

Reason: _____

Received By: _____
(Printed Name) (Signature)

Reason: _____

**CENTERS FOR DISEASE CONTROL AND PREVENTION CHEMICAL TERRORISM BLOOD
SPECIMEN COLLECTION AND SHIPPING MANIFEST**

DATE SHIPPED: _____

SHIPPED BY: _____

CONTACT TELEPHONE: _____

SIGNATURE: _____

DATE RECEIVED: _____

RECEIVED BY: _____

SIGNATURE: _____

TOTAL NUMBER OF SPECIMENS
IN THIS CONTAINER:

PURPLE-TOP TUBES:

GREEN/GRAY-TOP TUBES:

TOTAL NUMBER OF BLANK TUBES
PROVIDED IN THIS CONTAINER:

PURPLE-TOP TUBES:

GREEN/GRAY-TOP TUBES:

COMMENTS: _____
